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| EXAMINER | |
|---|---|
| MARTIN, LAURA E | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/827,139 | BENJAMIN ET AL. | |
| | Examiner | Art Unit | |
| | Laura E. Martin | 2853 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/19/04, 7/13/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-11, 19-21, 23-27, 29-32, 35-44, and 47-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayasaki (EP 1128324).

As per claim 1, Hayasaki teaches a fluid ejection device comprising: a first fire line adapted to conduct a first energy signal comprising energy pulses; a second fire line adapted to conduct a second energy signal comprising energy pulses (figure 3, line 0 from element 5; [0058-0060]); a first address generator configured to provide first address signals; a second address generator configured to provide second address signals (figure 3, element 8'; [0058-0060]); first drop generators electrically coupled to the first fire line and configured to respond to the first energy signal to eject fluid based on the first address signals; and second drop generators electrically coupled to the second fire line and configured to respond to the second energy signal to eject fluid based on the second address signals (figure 3, element 1; [0058-0060].

As per claim 3, Hayasaki teaches a fluid ejection device, wherein the first address generator is disposed on a first half portion of the fluid ejection device and the

second address generator is disposed on a second half portion of the fluid ejection device, and wherein the first drop generators are disposed on the first half portion and the second drop generators are disposed on the second half portion (figure 3, elements 8' and 1; [0058-0060]).

As per claim 4, Hayasaki teaches a fluid ejection device, wherein the first address generator is disposed at one end of the fluid ejection device and the second address generator is disposed at the other end of the fluid ejection device (figure 3, element 8'; [0058-0060]).

As per claim 5, Hayasaki teaches a fluid ejection device, wherein the first address generator is disposed in one corner of the fluid ejection device and the second address generator is disposed in another corner of the fluid ejection device (figure 3, element 8'; [0058-0060]).

As per claim 6, Hayasaki teaches a fluid ejection device, comprising: a third fire line adapted to conduct a third energy signal comprising energy pulses; a fourth fire line adapted to conduct a fourth energy signal comprising energy pulses (figure 3, line 1 from element 5; [0058-0060]); third drop generators electrically coupled to the third fire line and configured to respond to the third energy signal to eject fluid based on the first address signals; and fourth drop generators electrically coupled to the fourth fire line and configured to respond to the fourth energy signal to eject fluid based on the second address signals (figure 3, element 1; [0058-0060]).

As per claim 7, Hayasaki teaches a fluid ejection device, wherein the first and third drop generators are disposed on a first half portion, and the second and fourth drop generators are disposed on a second half portion (figure 3, element 1; [0058-0060]).

As per claim 8, Hayasaki teaches a fluid ejection device, comprising: a fifth fire line adapted to conduct a fifth energy signal comprising energy pulses; a sixth fire line adapted to conduct a sixth energy signal comprising energy pulses (figure 3, line 2 from element 5; [0058-0060]); fifth drop generators electrically coupled to the fifth fire line and configured to respond to the fifth energy signal to eject fluid based on the first address signals; and sixth drop generators electrically coupled to the sixth fire line and configured to respond to the sixth energy signal to eject fluid based on the second address signals [0059], and wherein the first, third and fifth drop generators are disposed on a first half portion and the second, fourth and sixth drop generators are disposed on a second half portion (figure 3; [0058-0060]).

As per claim 9, Hayasaki teaches a fluid ejection device, comprising first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals (figure 3,element 8'; [0058-0060]), wherein the first address lines are disposed in one half portion and the second address lines are disposed in a second half portion [0060].

As per claim 10, Hayasaki teaches a fluid ejection device, comprising: a fluid feed source having a length (figure 20A, element 102), wherein each of the first drop

generators is fluidically coupled to the fluid feed source [0058-0059] and [0104-0107]; and address lines adapted to conduct the first address signals, wherein the first drop generators are configured to respond based on the first address signals provided by the first address lines, wherein the first fire line and the address lines are disposed as non-overlapping metal lines along a portion of the length of the fluid feed source (figure 3, lines from element 8' go to resistor 1).

As per claim 11, Hayasaki teaches a fluid ejection device, comprising a fluid feed source, wherein each of the first drop generators and each of the second drop generators is fluidically coupled to the fluid feed source (figure 20A, element 102; [0058-0059] and [0104-0107]).

As per claim 19, Hayasaki teaches a fluid ejection device, comprising: data lines adapted to conduct data signals representing an image (figure 3, elements DATA0-DATA3), wherein the first drop generators are configured to respond to the first energy signal to eject fluid based on the data signals and the second drop generators are configured to respond to the second energy signal to eject fluid based on the data signals [0064-0065].

As per claim 20, Hayasaki teaches a fluid ejection device, wherein the first drop generators are divided into data line groups of drop generators, wherein the first drop generators in each of the data line groups of drop generators are configured to respond to the first energy signal based on the data signals received on one of the data lines [0064-0066].

As per claim 21, Hayasaki teaches a fluid ejection device, comprising: a first fire line adapted to conduct a first energy signal comprising energy pulses; a second fire line adapted to conduct a second energy signal comprising energy pulses (figure 3, line 0 from element 5; [0058-0060]); means for generating first address signals; means for generating second address signals (figure 3, element 8'; [0058-0060]); means for responding to the first energy signal to eject fluid based on the first address signals; and means for responding to the second energy signal to eject fluid based on the second address signals (figure 3, element 1; [0058-0060]).

As per claim 23, Hayasaki teaches a fluid ejection device, wherein the means for generating first address signals is disposed on a first half of the fluid ejection device and the means for generating second address signals is disposed on a second half of the fluid ejection device (figure 3, element 8'; [0058-0060]).

As per claim 24, Hayasaki teaches a fluid ejection device, wherein the means for generating first address signals is disposed in one corner of the fluid ejection device and the means for generating second address signals is disposed in another corner of the fluid ejection device (figure 3, element 8'; [0058-0060]).

As per claim 25, Hayasaki teaches a fluid ejection device, comprising means for supplying the first address signals to the means for responding to the first energy signal and means for supplying the second address signals to the means for responding to the second energy signal (figure 3, element 8'; [0058-0060]), wherein the means for supplying the first address signals is disposed in a first half portion of the fluid ejection

device and the means for supplying the second address signals is disposed in a second half portion of the fluid ejection device (figure 20A, element 102; [0058-0060] and [0104-0107]).

As per claim 26, Hayasaki teaches a method of operating a fluid ejection device comprising: generating first address signals in the fluid ejection device; generating second address signals in the fluid ejection device(figure 3, element 8'; [0058-0060]); receiving a first energy signal comprising energy pulses on a first fire line; receiving a second energy signal comprising energy pulses on a second fire line (figure 3, line 0 from element 5; [0058-0060]); responding to the first energy signal to eject fluid based on the first address signals; and responding to the second energy signal to eject fluid based on the second address signals (figure 3, element 1; [0058-0060]).

As per claim 27, Hayasaki teaches a method, comprising: receiving the first energy signal at each of first drop generators; receiving the second energy signal at each of second drop generators; activating the first drop generators based on the first address signals; and activating the second drop generators based on the second address signals [0064-0068].

As per claim 29, Hayasaki teaches a method, comprising: receiving a third energy signal comprising energy pulses on a third fire line; receiving a fourth energy signal comprising energy pulses on a fourth fire line (figure 3, line 1 from element 5; [0058-0060]); responding to the third energy signal to eject fluid based on the first

address signals; and responding to the fourth energy signal to eject fluid based on the second address signals [0064-0066].

As per claim 30, Hayasaki teaches a method, comprising: receiving a fifth energy signal comprising energy pulses on a fifth fire line; receiving a sixth energy signal comprising energy pulses on a sixth fire line (figure 3, line 2 from element 5; [0058-0060]); responding to the fifth energy signal to eject fluid based on the first address signals; and responding to the sixth energy signal to eject fluid based on the second address signals [0064-0066].

As per claim 31, Hayasaki teaches a method, comprising: receiving data signals representing an image on data lines (figure 3, elements DATA0 – DATA3); responding to the first energy signal to eject fluid based on the data signals; and responding to the second energy signal to eject fluid based on the data signals [0064-0065].

As per claim 32, Hayasaki teaches a method, wherein the first and second drop generators are divided into data line groups of drop generators, the method comprising activating the first and second drop generators in each of the data line groups of drop generators based on the data signals on a corresponding data line [0064-0066].

As per claim 35, Hayasaki teaches a fluid ejection device comprising: a first fire line adapted to conduct a first energy signal comprising energy pulses (figure 3, line 0 from element 5); a first source of address signals configured to provide first address signals (figure 3, element 8'); and first resistors electrically coupled to the first fire line and configured to respond to the first pulses to cause fluid to be ejected fluid based on

the first address signals, wherein the first source of address signals and the first resistors are positioned on a first portion of the fluid ejection device (figure 3, element 1).

As per claim 36, Hayasaki teaches a fluid ejection device, comprising: a second fire line adapted to conduct a second energy signal comprising energy pulses (figure 3, line 0 from element 5; [0058-0060]; and second resistors electrically coupled to the second fire line and configured to respond to the second pulses to cause fluid to be ejected fluid based on the first address signals, wherein the first source of address signals and the second resistors are positioned on the first portion of the fluid ejection device (figure 3, element 1; [0058-0060]).

As per claim 37, Hayasaki teaches a fluid ejection device, comprising: a second source of address signals configured to provide second address signals (figure 3, element 8'; [0058-0060]), wherein the second source of address signals is positioned on a second portion of the fluid ejection device to supply address signals to resistors on the second portion of the fluid ejection device (figure 3, element 1; [0058-0060]).

As per claim 38, Hayasaki teaches a fluid ejection device, comprising: a second fire line adapted to conduct a second energy signal comprising energy pulses [0064-0066]; a second source of address signals configured to provide second address signals (figure 3, element 8'; [0058-0060]; and second resistors electrically coupled to the second fire line and configured to respond to the second pulses to eject fluid based on the second address signals (figure 3, element 1; [0058-0060]), wherein the second

source of address signals and the second resistors are positioned on a second portion of the fluid ejection device.

As per claim 39, Hayasaki teaches a fluid ejection device comprising: a first source of first address signals; a second source of second address signals (figure 3, element 8'; [0058-0060]); first address lines configured to conduct the first address signals; second address lines configured to conduct the second address signals (figure 3, lines from element 8'; [0058-0060]); first resistors electrically coupled to the first address lines, the first resistors configured to cause fluid to be ejected based on the first address signals; and second resistors electrically coupled to the second address lines, the first resistors configured to cause fluid to be ejected based on the first address signals; and wherein the first address generator and the first resistors are located on first portion of the fluid ejection device and the second address generator and the second resistors are located on a second portion of the fluid ejection device (figure 3, element 1; [0058-0060]).

As per claim 40, Hayasaki teaches a fluid ejection device, wherein the first address lines are disposed in only the first portion and the second address lines are disposed in only the second portion (figure 3; [0058-0060]).

As per claim 41, Hayasaki teaches a fluid ejection device, wherein the first address lines and the first fire line are disposed in only the first portion and the second address lines and the second fire line are disposed in only the second portion (figure 3; [0058-0060]).

As per claim 42, Hayasaki teaches a fluid ejection device, comprising: a fluid feed source having a length (figure 20A, element 102), wherein the first fire line and the first address lines are disposed as non-overlapping metal lines along a portion of the length of the fluid feed source (figure 3).

As per claim 43, Hayasaki teaches a method for operating a fluid ejection device that comprises a first group of resistors that each cause fluid to be ejected from a corresponding opening and a second group of resistors that cause fluid to be ejected from a corresponding opening (figure 3, element 1; [0058-0060]), the first group of resistors being disposed on a first portion of the fluid ejection device and the second resistors being disposed on a second portion of the fluid ejection device, the method comprising: generating first address signals at a first source; generating second address signals at a second source different than the first source (figure 3, element 8'; [0058-0060]); providing the first address signals to the first group of resistors; and providing the second address signals to the second group of resistors (figure 3, lines 0-43 from element 8'; [0058-0060]).

As per claim 44, Hayasaki teaches a method, further comprising providing first energy pulses on a first line that is coupled to the first group of resistors and providing second energy pulses on a second line coupled to the second group of resistors (figure 3; [0058-0060] and [0064-0066]).

As per claim 47, Hayasaki teaches a method, further comprising providing a synchronization signal to both the first and second source of address signals (figure 3, element CLK; [0050-0051]).

As per claim 48, Hayasaki teaches a fluid ejection device comprising: a first fire line adapted to conduct a first energy signal comprising energy pulses (figure 3, line 0 from element 5); data lines adapted to conduct data signals representing an image (figure 3, elements DATA0-DATA3); a first fluid feed source (figure 20A, element 121); and first drop generators disposed along opposing sides of the first fluid feed source, wherein each of the first drop generators is fluidically coupled to the first fluid feed source and electrically coupled to the first fire line, wherein the first drop generators are configured to respond to the first energy signal to eject fluid based on the data signals (figure 3, element 1).

As per claim 49, Hayasaki teaches a fluid ejection device, comprising: means for receiving a first energy signal comprising energy pulses (figure 3, element 1, receieves pulses from lines 0-7 from element 5); means for receiving data signals representing an image (figure 3, element 8' or 5); means for supplying fluid (figure 20A, element 121); means for receiving the fluid; and means for responding to the first energy signal to eject the fluid based on the data signals (figure 21; [0064-0066]).

As per claim 50, Hayasaki teaches a method of operating a fluid ejection device comprising: receiving a first energy signal comprising energy pulses on a first fire line (figure 3, lines 0-7 from element 5); receiving data signals representing an image on

data lines (figure 3, elements DATA0-DATA3); supplying fluid from a first fluid feed source to first drop generators disposed along opposing sides of the first fluid feed source (figure 20A, element 121); and ejecting fluid from the first drop generators in response to the first energy signal based on the conducted data signals [0064-0066].

As per claim 51, Hayasaki teaches a fluid ejection device, comprising: a first fire line adapted to conduct a first energy signal comprising energy pulses; a second fire line adapted to conduct a second energy signal comprising energy pulses (figure 3, line 0 from element 5; [0058-0060]); an address generator configured to provide address signals (figure 3, element 8'); a latch configured to latch in the address signals to provide latched address signals (figure 3, element 8'; [0060]); first drop generators electrically coupled to the first fire line and configured to respond to the first energy signal to eject fluid based on the address signals; and second drop generators electrically coupled to the second fire line and configured to respond to the second energy signal to eject fluid based on the latched address signals (figure 3, element 1; [0058-0060]).

As per claim 52, Hayasaki teaches a fluid ejection device, comprising: a first fire line adapted to conduct a first energy signal comprising energy pulses (figure 3, line 0 from element 5); an address generator configured to provide address signals (figure 3, element 8'); a latch configured to latch in the address signals to provide latched address signals (figure 3, element 8'; [0060]); first drop generators including a first portion of the first drop generators and a second portion of the first drop generators, wherein the first portion is electrically coupled to the first fire line and configured to respond to the first

energy signal to eject fluid based on the address signals and the second portion of the first drop generators is electrically coupled to the first fire line and configured to respond to the first energy signal to eject fluid based on the latched address signals (figure 3, element 1; [0058-0060]).

As per claim 53, Hayasaki teaches a fluid ejection device, comprising: means for receiving a first energy signal having time energy pulses; means for receiving a second energy signal having time energy pulses (figure 3, lines 0-7 from element 5; [0058-0060]); means for generating address signals (figure 3, element 8'); means for latching the address signals to provide latched address signals [0060]; means for responding to the first energy signal to eject fluid based on the address signals; and means for responding to the second energy signal to eject fluid based on the latched address signals (figure 3, element 1; [0058-0060]).

As per claim 54, Hayasaki teaches a method of operating a fluid ejection device, comprising: providing an address generator configured to provide address signals (figure 3, element 8'); providing a latch configured to latch in the address signals [0060]; receiving a first energy signal comprising energy pulses on a first fire line; receiving a second energy signal comprising energy pulses on a second fire line (figure 3, line 0 from element 5; [0058-0060]; responding to the first energy signal to eject fluid based on the address signals; and responding to the second energy signal to eject fluid based on the latched address signals (figure 3, element 1; [0058-0060]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayasaki (EP1128324) in view of Axtell et al. (US 20020060722).

Hayasaki teaches a fluid ejection device and method; however, it does not teach a device or method, wherein the first address signals are valid while the second address signals are invalid and the second address signals are valid while the first address signals are invalid.

Axtell et al. teaches a device or method, wherein the first address signals are valid while the second address signals are invalid and the second address signals are valid while the first address signals are invalid (figure 5B, An, An+8, pulses are generated at different times).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection apparatus and method of Hayasaki with the

disclosure of Axtell et al. in order to create an effective printing apparatus that has the ability to control which fluid ejection elements are to be utilized.

Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayasaki (EP1128324) in view of Cleland et al. (US 6491377).

As per claims 12, 13, and 14,Hayasaki teaches a fluid ejection device with fluid feed sources (figure 20A, element 121) and drop generators (figure 3, element 1).

As per claim 15, Hayasaki teaches a third line adapted to conduct a third energy signal comprising energy pulses, and a fourth fire line adapted to conduct a fourth energy signal comprising energy pulses (figure 3, line 1 from element 5; [0058-0060]); third drop generators electrically coupled to the third fire line and configured to respond to the third energy signal to eject fluid based on the first address signal and fourth drop generators electrically coupled the fourth fire line and configured to respond to the fourth energy signal based on the second address signals (figure 3, element 1; [0058-0060]).

As per claim 16, Hayasaki teaches a fluid ejection device, comprising first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals (figure 3, element 8'; [0058-0060]), wherein the first and third drop generators and the first address lines are disposed on a first half portion and the second and fourth drop generators and the second address lines are disposed on a second half portion (figure 3; [0058-0060]).

As per claim 17, Hayasaki teaches a fluid ejection device, comprising a fifth fire line adapted to conduct a fifth energy signal comprising energy pulses; a sixth fire line adapted to conduct a sixth energy signal comprising energy pulses (figure 3, line 2 from element 5; [0058-0060]); fifth drop generators electrically coupled to the fifth fire line and configured to respond to the fifth energy signal to eject fluid based on the first address signals; and sixth drop generators electrically coupled to the sixth fire line and configured to respond to the sixth energy signal to eject fluid based on the second address signals (figure 3, element 1; [0058-0060]).

As per claim 18, Hayasaki teaches a fluid ejection device, comprising first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals (figure 3, element 8'; [0058-0060]) wherein the first, third and fifth drop generators and the first address lines are disposed on a first half portion and the second, fourth and sixth drop generators and the second address lines are disposed on a second half portion (figure 3, [0058-0060]).

As per claim 12, Hayasaki does not teach a fluid ejection device comprising a fluid feed source, wherein the first drop generators are disposed on opposing sides of the fluid feed source and each of the first drop generators is fluidically coupled to the fluid feed source, and the second drop generators are disposed on opposing sides of the fluid feed source and each of the second drop generators is fluidically coupled to the fluid feed source.

As per claim 13, Hayasaki does not teach a fluid ejection device, comprising a first fluid feed source and a second fluid feed source, wherein each of the first drop generators is fluidically coupled to the first fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source.

As per claim 14, Hayasaki does not teach a fluid ejection device comprising a first fluid feed source and a second fluid feed source, wherein the first drop generators are disposed on opposing sides of the first fluid feed source and each of the first drop generators is fluidically coupled to the first fluid feed source and the second drop generators are disposed on opposing sides of the second fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source.

As per claim 15, Hayasaki does not teach a first fluid feed source and a second fluid feed source or each of the first and second drop generators are coupled to the first fluid feed source and each of the third and fourth drop generators area coupled to the second fluid feed source.

As per claim 17, Hayasaki does not teach a third fluid feed source, or the fifth and sixth drop generators being coupled to the third fluid feed source.

As per claim 12, Cleland et al. teaches a fluid ejection device comprising a fluid feed source, wherein the first drop generators (figure 13A, elements 1-8) are disposed on opposing sides of the fluid feed source (figure 13A, element YELLOW) and each of the first drop generators is fluidically coupled to the fluid feed source, and the second

drop generators (figure 13A, elements 9-16) are disposed on opposing sides of the fluid feed source and each of the second drop generators (figure 13A, element MAGENTA) is fluidically coupled to the fluid feed source.

As per claim 13, Cleland et al. teaches a fluid ejection device, comprising a first fluid feed source (figure 13A, element YELLOW) and a second fluid feed source (figure 13A, element MAGENTA), wherein each of the first drop generators is fluidically coupled to the first fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source (column 7, lines 47-65).

As per claim 14, Cleland et al. teaches a fluid ejection device comprising a first fluid feed source (figure 13A, element YELLOW) and a second fluid feed source (figure 13A, element MAGENTA, wherein the first drop generators are disposed on opposing sides of the first fluid feed source (figure 13A, elements 1-8) and each of the first drop generators is fluidically coupled to the first fluid feed source and the second drop generators are disposed on opposing sides of the second fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source (figure 13A, elements 9-16).

As per claim 15, Cleland et al. teaches a first fluid feed source and a second fluid feed source (figure 13A, elements YELLOW and MAGENTA) or each of the first and second drop generators are coupled to the first fluid feed source and each of the third and fourth drop generators area coupled to the second fluid feed source (column 7, lines 47-65 and figure 13A).

As per claim 17, Cleland et al. teaches a third fluid feed source (figure 13A, element CYAN), or the fifth and sixth drop generators being coupled to the third fluid feed source (figure 13A, elements 17-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection device of Hayasaki with the disclosure of Cleland et al. in order to create an efficient, multi-colored, printing apparatus.

Claims 33, 34, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayasaki (EP 1128324).

As per claims 33, 34, 45, and 46, Hayasaki discloses all of the claimed invention except for an energy variation of less than 20% between any of the first drop generators and an energy variation up to 10% to 15% between any two of the first two drop generators. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the ranges of energy between the drop generators, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* USPQ 233.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Krouss et al. (US 6190000 teaches an address generator (figure 4, element 44), firing lines (figure 4, $P_1$-$P_4$) and drop generators (figure 4, elements $R_{11}$-$R_{14}$; $R_{21}$-$R_{24}$; and $R_{31}$-$R_{34}$).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin

4/17/06

MANISH S. SHAH
PRIMARY EXAMINER